

[AN APPARATUS AND METHOD FOR TRANSMISSION AND REMOTE SENSING OF SIGNALS FROM INTEGRATED CIRCUIT DEVICES]

Abstract

An apparatus and a method for testing semiconductor devices, such as individual integrated circuits in semiconductor chips, by directing a current in each circuit through a respective selected predetermined path to establish, in each circuit, a respective focused magnetic field and converting each such magnetic field into a respective voltage which, when fed to respective amplifier gated with a respective selected frequency, will modulate each such respective voltage. Each such respective voltage is then used to create a respective pulsating magnetic field that when detected by a respective remote magnetic sensor will provide a series of respective signals representative of the current in the respective circuit from which the pulsating magnetic field was derived. By applying each such series of voltages to a lock-in amplifier synchronized at the respective frequencies gating each respective amplifier the

current in each circuit being tested can be accurately determined and will be free of errors due to circuit noise or crosstalk between the circuits under test.